50X1-HUM

ata rawa

After experiments conducted over a puriod of nine months at the South Works, Bitterfold, and in the Becker firm, heapping-leutesch, an alloy for the production of spheralytic cast from has been subcessfully developed. Experiments will continue in order to devolop a simpler alloy, since that described below is very expensive, from the point of view of both the cost of production and the cost of raw materials. There is wide scope for the une of spheralytic cast from facthe manufacture of rollers for rolling-mills.

The alloy consists of:

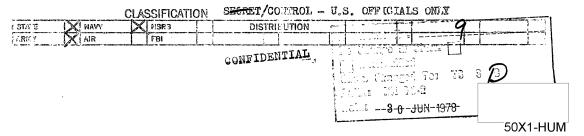
Magnesiva	approximately	20%
Iron	17	13%
Nickel	19	12%
Copper	??	33%
Silicon	71	23%

The most important element is magnesium, which permits the finely-divided graphite to coagulate in globules. This increases the ductility of the cast from by 4% and its strength by 20%. Three percent of alloy is used per ton of east iron.

- The addition of the allry to the cast from takes place either by simultaneous pouring into a pan, or by the introduction of the alloy into the bottom of the bath, the mixture being continually stirred by an iron rod covered with fire clay. The iron content of the alloy may also be added in the form of ferrosallors which melts more readily than pure from.
- The process for the smelting of the alloy is as follows:

First, the pure ecoper is melted, and the temperature of the bath is raised to approximately 1,400°C. The corresponding proportion of mickel which has first been made red-hot to insure ready mixing is then edded. Particular constant be taken to insure that the mixtel is completely melted. The bath is stirred continuously. It is necessary to maintain a permanent protoctive layer on the surface of the metal, consisting of 50% salt and 50% sylvinite. If this protective layer is broken during the stirring, it must be renewed.

Once the nickel has maltad completely, the surface stag is removed and iron in the form of 40-50% ferrosilicen is added. This floats and care must be taken to



Declassified in Part - Sanitized Copy Approved for Release 2012/02/02: CIA-RDP82-00457R006100810009-0

CONTRAL THE AUGMOR AGENCY 50X1-HUM

CONTIDENS.....

insure that it mises properly. After this has molted, pure silicon is added and the misture is thoroughly stirred.

At this point the surface sing is again removed, and small quantities of lange bumps of magnesion are added. This, thick must be pushed well below the current make quickly and to present its catching fire, the contents of the durage must be quickly poured will into a cooling mold. The alloy is subject to very rapid orderion, and, to prevent the magnetim from eatthing fire in the mild, the save multan metal must be covered with anothers subject to time while it is cooling off. In spate of the fact that this process is accompanied by severifice, less than 10% of the match is in fact consumed while being poured off.

MEGRET/CONTROL - J.S. DEPRIMALS ONLY

CONFIDENTIAL